EUROPOWER PMH518M

User's Manual

GB

Version 1.1 April 2006

www.behringer.com

BEHRINGER®
JUST LISTEN.

IMPORTANT SAFETY INSTRUCTIONS

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CAUTION: To reduce the risk of electric shock, do not remove the top cover (or the rear section). No user serviceable parts inside; refer servicing to qualified personnel.

WARNING: To reduce the risk of fire or electric shock, do not expose this appliance to rain and moisture. The apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.

This symbol, wherever it appears, alerts you to the presence of uninsulated dangerous voltage inside the enclosure—voltage that may be sufficient to constitute a risk of shock.

This symbol, wherever it appears, alerts you to important operating and maintenance instructions in the accompanying literature. Please read the manual.

DETAILED SAFETY INSTRUCTIONS:

1) Read these instructions.

2) Keep these instructions.

3) Heed all warnings.

4) Follow all instructions.

5) Do not use this apparatus near water.

6) Clean only with dry cloth.

7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11) Only use attachments/accessories specified by the manufacturer.

12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13) Unplug this apparatus during lightning storms or when unused for long periods of time.

14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

15) CAUTION - These service instructions are for use by qualified service personnel only. To reduce the risk of electric shock do not perform any servicing other than that contained in the operation instructions unless you are qualified to do so.

EUROPOWER

Ultra-Compact 180-Watt 5-Channel Powered Mixer with 24-Bit Multi-FX Processor and FBQ Feedback Detection System

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- Super-compact rackmountable 180-Watt powered mixer with 24-bit FX processor
- Revolutionary amplifier technology: enormous power, incredible sonic performance and super-light weight
- Ultra-compact dimensions at nearly half the depth and weight of conventional powered mixers means no more lugging around dead weight
- Ultra low-noise ULN design for highest possible headroom and ultra-transparent audio
- 5-channel mixer section comprised of 5 mic/line channels plus separate 2-track in/output
- Integrated 24-bit digital FX processor with 100 awesome presets including reverb, chorus, flanger, delay, pitch shifter and various multi-effects
- Revolutionary FBQ Feedback Detection System instantly reveals critical frequencies for easy feedback removal
- 5 high-quality mic preamps with switchable Pad and Clip LEDs
- Effective, extremely musical 2-band EQ on all channels
- 7-band graphic EQ allows precise frequency correction
- 3 speaker outputs on 1/4" jack and professional speaker connectors (compatible to Neutrik® Speakon®)*
- Rack mount brackets included
- High-quality components and exceptionally rugged construction ensure long life
- Conceived and designed by BEHRINGER Germany

PMH518M

* All Trademarks mentioned belong to their respective owners and are not affiliated with BEHRINGER®

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FOREWORD

Dear Customer,

Welcome to the team of EUROPOWER users and thank you very much for expressing your confidence in BEHRINGER products by purchasing this power mixer.

It is one of my most pleasant tasks to write this letter to you, because it is the culmination of many months of hard work delivered by our engineering team to reach a very ambitious goal: to present you an outstanding power mixer that gives you maximum flexibility and performance with a unique sound character and broad range of striking functions.

The task to design the new PMH518M certainly meant a great deal of responsibility, which we assumed by focusing on you, the discerning user and musician. It also meant a lot of work and night shifts to accomplish this goal. But it was fun, too. Developing a product usually brings a lot of people together, and what a great feeling it is when everybody who participated in such a project can be proud of what we've achieved.

It is our philosophy to share our joy with you, because you are the most important member of the BEHRINGER team. With your highly competent suggestions for new products you've greatly contributed to shaping our company and making it successful. In return, we guarantee you uncompromising quality as well as excellent technical and audio properties at an extremely favorable price. All of this will enable you to fully unfold your creativity without being hampered by budget constraints.

We are often asked how we can make it to produce such high-grade devices at such unbelievably low prices. The answer is quite simple: it's you, our customers! Many satisfied customers means large sales volumes enabling us to get better conditions of purchase for components, etc. Isn't it only fair to pass this benefit back to you? Because we know that your success is our success, too!

I would like to thank all people whose help on the PMH518M has made it all possible. Everybody has made very personal contributions, starting from the designers of the unit to the many staff members in our company and finally to you, the user of BEHRINGER products.

My friends, it's been worth the trouble!

Thank you very much,

Uli Behringer

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CAUTION!

☞ **We would like to point out that high volume levels may damage your hearing and/or your loudspeakers. Please turn the MASTER control fully counter-clockwise before switching on the device. Always make sure that the appropriate volume is set.**

1. INTRODUCTION

Congratulations! With the PMH518M you have acquired a state-of-the-art power mixer that sets new standards. Right from the very start it has been our goal to design a revolutionary unit that can be used for a wide variety of applications. And indeed, this overwhelming power mixer gives you plenty of functionality and a broad range of connection and expansion options.

1.1 Before you get started

1.1.1 Shipment

Your EUROPOWER was carefully packed at the factory and the packaging is designed to protect the unit from rough handling. Nevertheless, we recommend that you carefully examine the packaging and its contents for any signs of physical damage which may have occurred during transit.

☞ **If the unit is damaged, please do NOT return it to BEHRINGER, but notify your dealer and the shipping company immediately. Otherwise, claims for damage or replacement may not be granted.**

☞ **We recommend that you use a flight case, so as to give your power mixer optimum protection during use or transport.**

☞ **Always use the original packing carton to prevent damage during storage or transport.**

☞ **Make sure that children cannot play unsupervised with the device or its packaging.**

☞ **Please ensure proper disposal of all packing materials.**

1.1.2 Initial operation

Be sure that there is enough air space around the unit for cooling and, to avoid overheating, please do not place the EUROPOWER near radiators, etc.

☞ **Blown fuses must be replaced by fuses of the same type and rating! Please refer to the "SPECIFICATIONS" for details.**

The mains connection is made using the enclosed power cord and a standard IEC receptacle. It meets all of the international safety certification requirements.

☞ **Please make sure that all units have proper ground connection. For your own safety, never remove or disable the ground conductor from the unit or on the AC power cord.**

1.1.3 Online registration

Please do remember to register your new BEHRINGER equipment right after your purchase by visiting www.behringer.com (alternatively www.behringer.de) and kindly read the terms and conditions of our warranty carefully.

Should your BEHRINGER product malfunction, our goal is to have it repaired as quickly as possible. To arrange for warranty service, please contact the retailer from whom the equipment was purchased. Should your BEHRINGER dealer not be located in your vicinity, you may directly contact one of our subsidiaries. Corresponding contact information is included in the original equipment packaging (Global Contact Information/European Contact Information). Should your country not be listed, please contact the distributor nearest you. A list of distributors can be found in the support area of our website (www.behringer.com).

Registering your purchase and equipment with us helps us process your repair claims quicker and more efficiently.

Thank you for your cooperation!

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2. CONTROL ELEMENTS

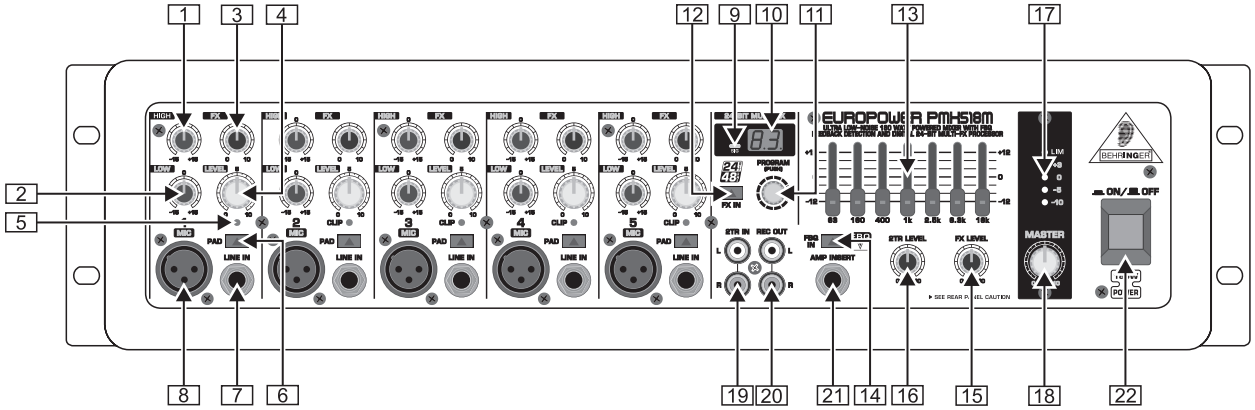

Fig. 2.1: Front panel control elements and connectors

2.1 Input channels

1 The *HIGH* control in the EQ section governs the high-frequency range of the respective channel.

2 The *LOW* control allows you too boost/cut the low-frequency range.

3 The *FX* control determines the signal level sent from each channel to the built-in effects processor.

☞ **Please note that the effects processor signal will be inaudible when the FX LEVEL control (15) is set fully counter-clockwise.**

4 The *LEVEL* control adjusts the channel signal level in the main mix.

5 The *CLIP* LED is very useful to control the input gain. It should never be constantly illuminated (only with signal peaks).

6 The *PAD* switch reduces the input sensitivity of the channel by approx. 30 dB, to connect for example line-level signals.

7 The balanced *LINE IN* input (1/4" TRS) can be used for line-level signal sources, e.g. keyboards.

8 Each channel has a balanced *MIC* microphone input with XLR connectors.

☞ **Please remember to use either the microphone <u>or</u> the line input of a channel at a time, but never both at the same time!**

2.2 Effects section

9 Be sure that the *CLIP* LED illuminates for signal peaks only. If it is illuminated all the time, it is a sign that the effects processor is overloading and hence producing unpleasant distortion. The *SIG* LED below illuminates when the effects processor receives an input signal.

10 The *EFFECT* display shows the currently selected preset.

11 Turn the *PROGRAM* control to select an effects preset (preset number starts flashing). Push the control briefly to confirm your selection.

12 Press the *FX IN* button to activate the effects processor.

2.3 Main section

13 Your power mixer is equipped with a graphic 7-band equalizer. Use the EQ to adjust the sound to the room acoustics.

14 Press the *FBQ IN* switch to activate the FBQ Feedback Detection System. The frequencies causing feedback are shown by the brightly lit fader LEDs. Simply lower the level of the respective frequency range until feedback disappears and the LED goes out.

15 Turn the *FX LEVEL* control to add effect to the main mix. When it is fully counterclockwise, no effect signal is added.

16 The *2TR LEVEL* control adjusts the volume of the 2 Track In signal (see 19).

17 Use this 5-digit LED meter to control the output level of the main signal. The upper *LIM* LED illuminates when the internal amp protection circuit responds to output levels that are too high.

18 The *MASTER* control is used to adjust the main output volume.

2.3.1 Connectors

19 The *2TR IN* RCA input allows you to feed in external stereo signals, e.g. from a CD player, tape deck or other line-level source.

20 The *REC OUT* (RCA) provides line-level signals from the power mixer to a DAT recorder, for example (two identical mono signals).

☞ **If the REC OUT signal is connected to a recorder whose output signal is returned to the 2TR IN, feedback can occur when you activate the record function. So, disconnect the 2TR IN from the recorder, before you start recording!**

21 The PMH518M features an *AMP INSERT* connector for different applications. You can use just the power stage of the mixer for connecting a preamp for example. For this application you can use a 1/4" TS connector where the signal is sent over the tip of the plug. Additionally you can use the AMP INSERT as output, so you can use just the mixer section and connect a separate power amp here. For this application you have to use a 1/4" TRS connector, because the signal is send over the ring of the plug.

22 Use the *POWER* switch to put the unit into operation. The POWER switch should always be in the “Off” position when you are about to connect the unit to the mains.

☞ **Please note: The POWER switch does not fully disconnect the unit from the mains. Unplug the power cord completely when the unit is not used for prolonged periods of time.**

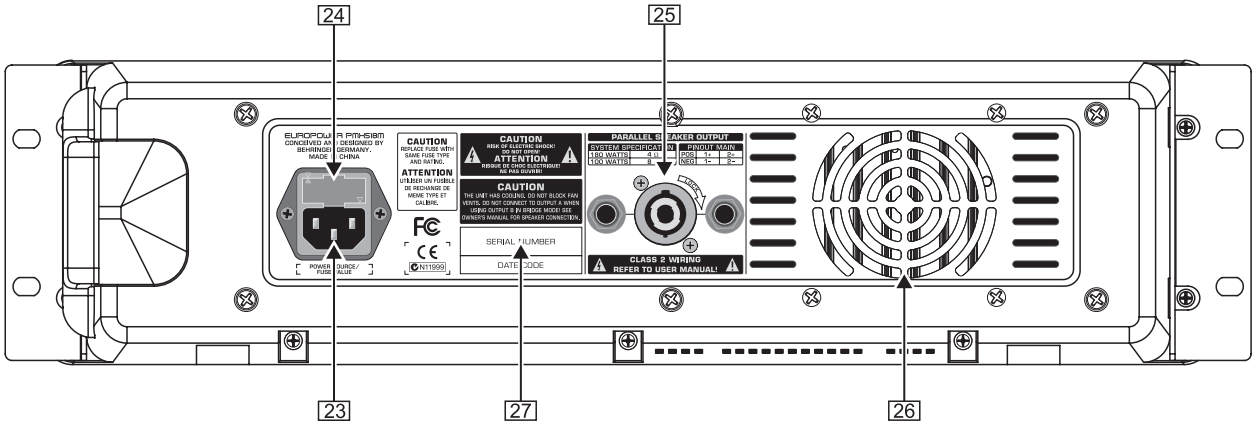

Fig. 2.2: Rear panel control elements and connectors

2.4 Rear panel

[23] The mains connection is on a standard IEC receptacle. An appropriate power cord is supplied with the unit.

[24] *FUSE HOLDER*. Before connecting the unit to the mains, ensure that the voltage setting matches your local voltage. Blown fuses should only be replaced by fuses of the same type and rating. Please also read the information given in chapter 6 "SPECIFICATIONS".

[25] The three *PARALLEL SPEAKER OUTPUT*s provide the mono main signal on a Neutrik® Speakon®-compatible connector (pins 1+/1- and 2+/2-) and on two 1/4" TS connectors.

☞ **The impedance of the loudspeaker connected must not fall below 4 Ω.**

☞ **Information on how to properly connect your speaker with regard to polarity can be found on the rear of the mixer (PINOUTs).**

[26] This is the cooling fan of the unit.

[27] *SERIAL NUMBER*.

3. DIGITAL EFFECTS PROCESSOR

100 FIRST-CLASS EFFECTS
The PMH518M features a built-in digital stereo effects processor. This effects processor offers a large number of standard effects such as Hall, Chorus, Flanger, Delay and various combination effects. Using the FX control, you can feed signals into the effects processor. The integrated effects module has the advantage of requiring no wiring. This way, the danger of creating ground loops or uneven signal levels is eliminated at the outset, completely simplifying the handling.

Presets 00 - 09:	**Hall**
Presets 10 - 19:	**Room**
Presets 20 - 29:	**Plate**
Presets 30 - 39:	**Gated/Reverse**
Presets 40 - 49:	**Early Reflections**
Presets 50 - 59:	**Delay**
Presets 60 - 69:	**Chorus**
Presets 70 - 79:	**Phase/Pitch**
Presets 80 - 89:	**Multi 1**
Presets 90 - 99:	**Multi 2**

4. INSTALLATION

4.1 Mains connection

Blown fuses must be replaced by fuses of the same type and rating.

The mains connection is made using the enclosed power cord and a standard IEC receptacle. It meets all of the international safety certification requirements.

☞ **Please make sure that all units have a proper ground connection. For your own safety, never remove or disable the ground conductor from the unit or of the AC power cord.**

4.2 Audio connections

The inputs and outputs of the BEHRINGER EUROPOWER are unbalanced 1/4" TS connectors — except for the balanced mono line inputs and the balanced XLR inputs. Of course, all inputs and outputs work with both balanced and unbalanced connectors. The Tape Ins and Outs are on RCA connectors.

☞ **Please ensure that only qualified personnel install and operate the power mixer. During installation and operation, the user must have sufficient electrical contact to earth. Electrostatic charges might affect the operation of the unit.**

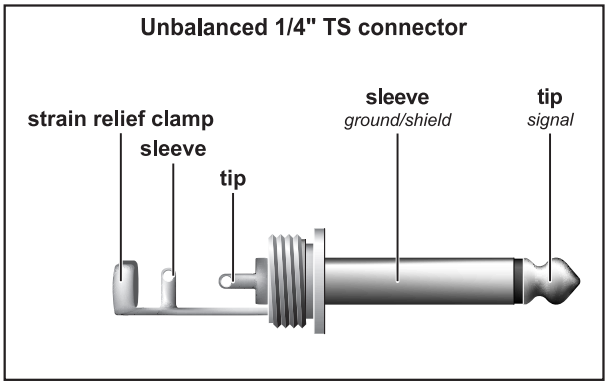

Fig. 4.1: 1/4" TS connector

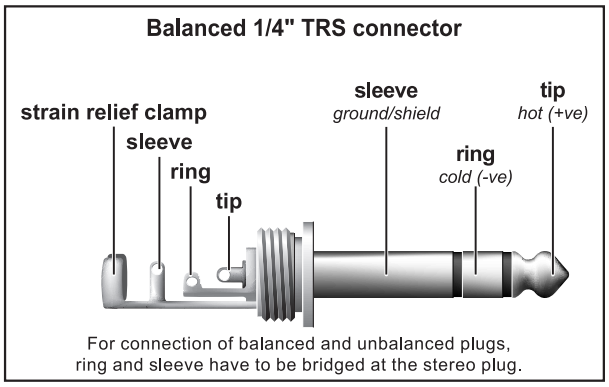

Fig. 4.2: 1/4" TRS connector

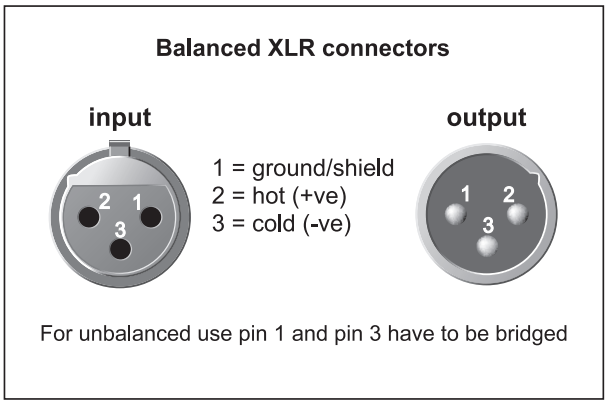
Balanced XLR connectors
input
output
1 = ground/shield
2 = hot (+ve)
3 = cold (-ve)
For unbalanced use pin 1 and pin 3 have to be bridged

Fig. 4.3: XLR connectors

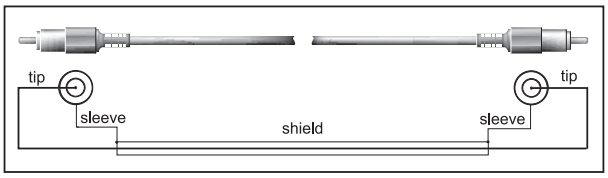

Fig. 4.4: RCA cable

4.3 Loudspeaker connection

Your EUROPOWER is equipped with high-quality Neutrik® Speakon®-compatible loudspeaker connectors, which ensure safe and trouble-free operation. The Speakon® connector was especially developed for high-power loudspeakers. Once it is plugged in, it safely locks into position and cannot be accidentally disengaged. It prevents the occurrence of electrical shock and ensures the correct polarity. Each of the connectors carries only the assigned single signal (see tab. 4.1/fig. 4.5 and the information on the rear panel of the power mixer).

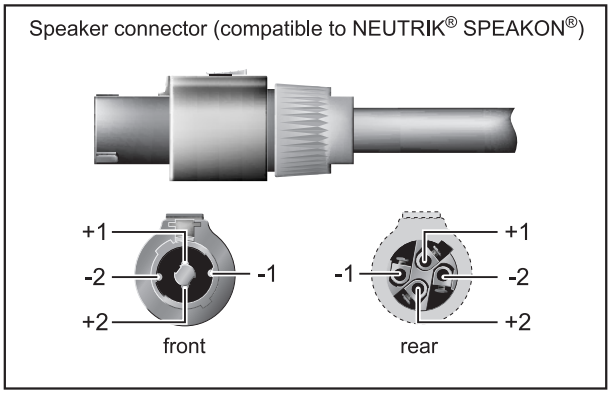

Fig. 4.5: Loudspeaker connector

Please be sure to only use commercial Speakon® cables (type NL4FC) for connecting your loudspeakers to the mixer. Please check the pin connections of your loudspeakers and cables depending on the EUROPOWER speaker output you choose.

EUROPOWER PMH518M				
OUTPUT	1+	1-	2+	2-
MAIN MONO	POS	NEG	POS	NEG

Tab. 4.1: Pin connections of the professional loudspeaker connector

5. APPLICATIONS

This illustration shows just one example of how the channels of your power mixer can be used, including the connection of mono and stereo sources, and the tape ins and outs recording the mix signal or playing back external signals.

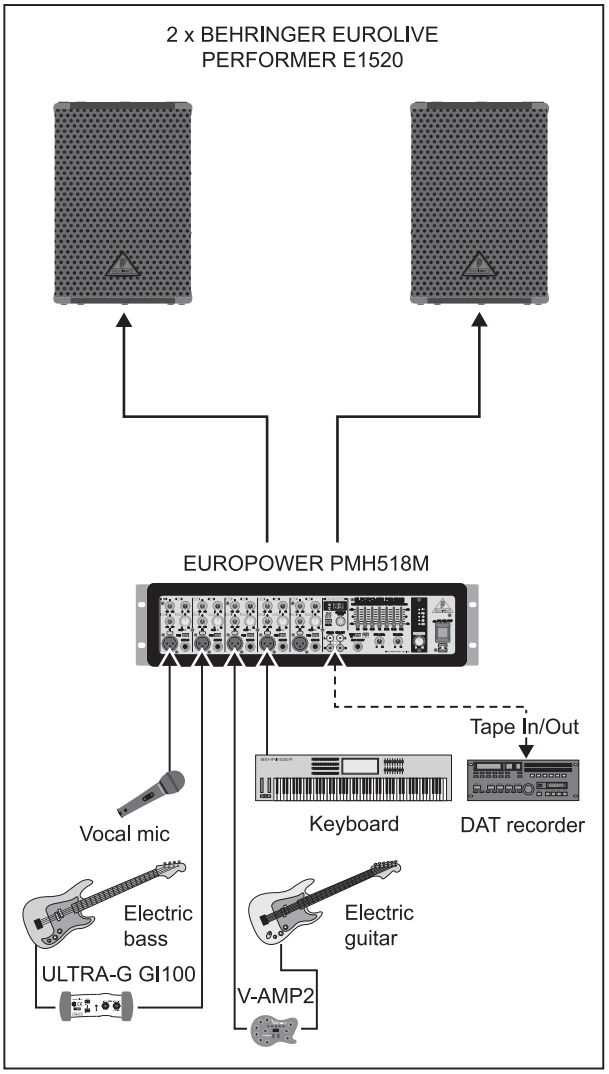

Fig. 5.1: Standard set-up

The following illustration shows a live application with the PMH518M as monitor mixer and a BEHRINGER EURODESK SL2442FX-PRO that provides the FOH main mix signal. The PMH518M receives the Aux Send signal of the EURODESK that is used for the monitor mix on stage.

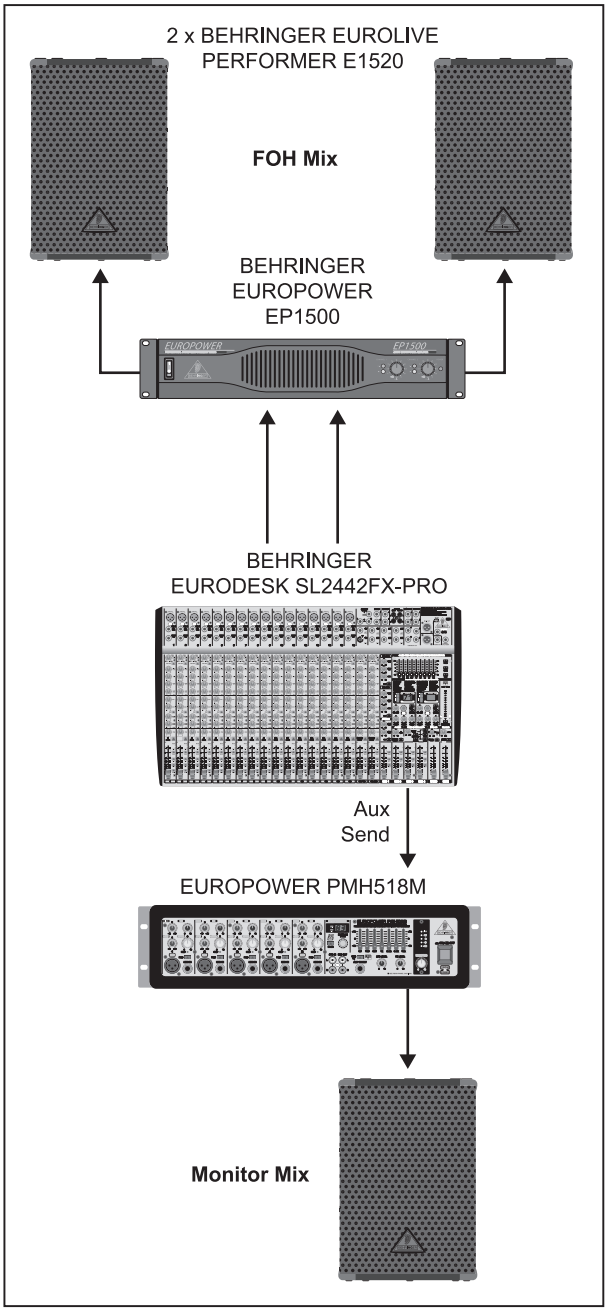

Fig. 5.2: Setup with PMH518M as monitor mixer

6. SPECIFICATIONS

MICROPHONE INPUTS	
Type	XLR, electronically balanced
Mic E.I.N. (20 Hz - 20 kHz)	
@ 0 Ω source resistance	-122 dB / -125 dB A-weighted
@ 50 Ω source resistance	-122 dB / -125 dB A-weighted
@ 150 Ω source resistance	-121 dB / -124 dB A-weighted
Frequency response	< 10 Hz - 100 kHz (-1 dB), < 10 Hz - 200 kHz (-3 dB)
Gain	+33 dB, +8 dB with pad
Max. input level	+12 dBu @ 10 dB gain
Impedance	approx. 2.2 kΩ balanced, 1.1 kΩ unbalanced
Signal-to-noise ratio	110 dB / 114 dB A-weighted (-11 dBu in @ +33 dB gain)
Distortion (THD+N)	0.001% / 0.0008% A-weighted
MONO LINE INPUTS	
Type	1/4" TRS connector, balanced
Impedance	approx. 80 kΩ balanced, 40 kΩ unbalanced
Max. input level	+30 dBu
EQ	
Low	80 Hz / ±15 dB
High	12 kHz / ±15 dB
MAIN MIX SYSTEM DATA	
Noise	
Main mix @ -∞, Channel fader -∞	-106 dB / -110 dB A-weighted
Main mix @ 0 dB, Channel fader -∞	-87 dB / -90 dB A-weighted
Main Mix @ 0 dB, Channel fader @ 0 dB	-80 dB / -82 dB A-weighted
LOUDSPEAKER OUTPUTS	
Type	Neutrik® Speakon®-compatible, 1/4" TS connectors
Load impedance	4 - 16 Ω
DSP	
Converter	24-bit Sigma-Delta,
Sampling rate	40 kHz
DISPLAY	
Type	2-digit, 7-segment LED
AMPLIFIER	
Output power @ 4 Ω	1 x 180 W
Output power @ 8 Ω	1 x 100 W
POWER SUPPLY	
Mains voltages	U.S./Canada 120 V~, 60 Hz China/Korea 220 V~, 50 Hz Europe/U.K./Australia 230 V~, 50 Hz Japan 100 V~, 50 - 60 Hz General export model 120/230 V~, 50 - 60 Hz
Power consumption	max. 290 W
Fuse	100 - 120 V~: **T 6.3 A H** 250 V 220 - 240 V~: **T 3.15 A H** 250 V
Mains connection	Standard IEC receptacle
PHYSICAL/WEIGHT	
Dimensions (H x W x D)	approx. 4 3/5" (117 mm) x 18 1/2" (470 mm) x 8 9/8" (225 mm)
Weight (net)	approx. 15.88 lbs (7.2 kg)

BEHRINGER is constantly striving to maintain the highest professional standards. As a result of these efforts, modifications may be made from time to time to existing products without prior notice. Specifications and appearance may differ from those listed or illustrated.

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7. WARRANTY

§ 1 OTHER WARRANTY RIGHTS AND NATIONAL LAW

1. This warranty does not exclude or limit the buyer's statutory rights provided by national law, in particular, any such rights against the seller that arise from a legally effective purchase contract.

2. The warranty regulations mentioned herein are applicable unless they constitute an infringement of national warranty law.

§ 2 ONLINE REGISTRATION

Please do remember to register your new BEHRINGER equipment right after your purchase by visiting www.behringer.com (alternatively www.behringer.de) and kindly read the terms and conditions of our warranty carefully.

Registering your purchase and equipment with us helps us process your repair claims quicker and more efficiently.

Thank you for your cooperation!

§ 3 WARRANTY

1. BEHRINGER (BEHRINGER International GmbH including all BEHRINGER subsidiaries listed on the enclosed page, except BEHRINGER Japan) warrants the mechanical and electronic components of this product to be free of defects in material and workmanship for a period of one (1) year* from the original date of purchase, in accordance with the warranty regulations described below. If the product shows any defects within the specified warranty period that are not excluded from this warranty as described under § 5, BEHRINGER shall, at its discretion, either replace or repair the product using suitable new or reconditioned parts. In the case that other parts are used which constitute an improvement, BEHRINGER may, at its discretion, charge the customer for the additional cost of these parts.

2. If the warranty claim proves to be justified, the product will be returned to the user freight prepaid.

3. Warranty claims other than those indicated above are expressly excluded.

§ 4 RETURN AUTHORIZATION NUMBER

1. To obtain warranty service, the buyer (or his authorized dealer) must call BEHRINGER (see enclosed list) during normal business hours **BEFORE** returning the product. All inquiries must be accompanied by a description of the problem. BEHRINGER will then issue a return authorization number.

2. Subsequently, the product must be returned in its original shipping carton, together with the return authorization number to the address indicated by BEHRINGER.

3. Shipments without freight prepaid will not be accepted.

§ 5 WARRANTY REGULATIONS

1. Warranty services will be furnished only if the product is accompanied by a copy of the original retail dealer's invoice. Any product deemed eligible for repair or replacement under the terms of this warranty will be repaired or replaced.

2. If the product needs to be modified or adapted in order to comply with applicable technical or safety standards on a national or local level, in any country which is not the country for which the product was originally developed and manufactured, this modification/adaptation shall not be considered a defect in materials or workmanship. The warranty does not cover any such modification/adaptation, irrespective of whether it was carried out properly or not. Under the terms of this warranty, BEHRINGER shall not be held responsible for any cost resulting from such a modification/adaptation.

3. Free inspections and maintenance/repair work are expressly excluded from this warranty, in particular, if caused by improper handling of the product by the user. This also applies to defects caused by normal wear and tear, in particular, of faders, crossfaders, potentiometers, keys/buttons, tubes, guitar strings, illuminants and similar parts.

4. Damages/defects caused by the following conditions are not covered by this warranty:

- ▲ improper handling, neglect or failure to operate the unit in compliance with the instructions given in BEHRINGER user or service manuals.
- ▲ connection or operation of the unit in any way that does not comply with the technical or safety regulations applicable in the country where the product is used.
- ▲ damages/defects caused by force majeure or any other condition that is beyond the control of BEHRINGER.

5. Any repair or opening of the unit carried out by unauthorized personnel (user included) will void the warranty.

6. If an inspection of the product by BEHRINGER shows that the defect in question is not covered by the warranty, the inspection costs are payable by the customer.

7. Products which do not meet the terms of this warranty will be repaired exclusively at the buyer's expense. BEHRINGER will inform the buyer of any such circumstance. If the buyer fails to submit a written repair order within 6 weeks after notification, BEHRINGER will return the unit C.O.D. with a separate invoice for freight and packing. Such costs will also be invoiced separately when the buyer has sent in a written repair order.

§ 6 WARRANTY TRANSFERABILITY

This warranty is extended exclusively to the original buyer (customer of retail dealer) and is not transferable to anyone who may subsequently purchase this product. No other person (retail dealer, etc.) shall be entitled to give any warranty promise on behalf of BEHRINGER.

§ 7 CLAIM FOR DAMAGES

Failure of BEHRINGER to provide proper warranty service shall not entitle the buyer to claim (consequential) damages. In no event shall the liability of BEHRINGER exceed the invoiced value of the product.

* Customers in the European Union please contact BEHRINGER Germany Support for further details.

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